Land Reserve Commission

Working Farms, Working Forests

2002 Audit Report

Private Managed Forest Practices

on Vancouver Island

April 2003

PREPARED FOR

AGRICULTURAL LAND COMMISSION
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BY

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104-07566/

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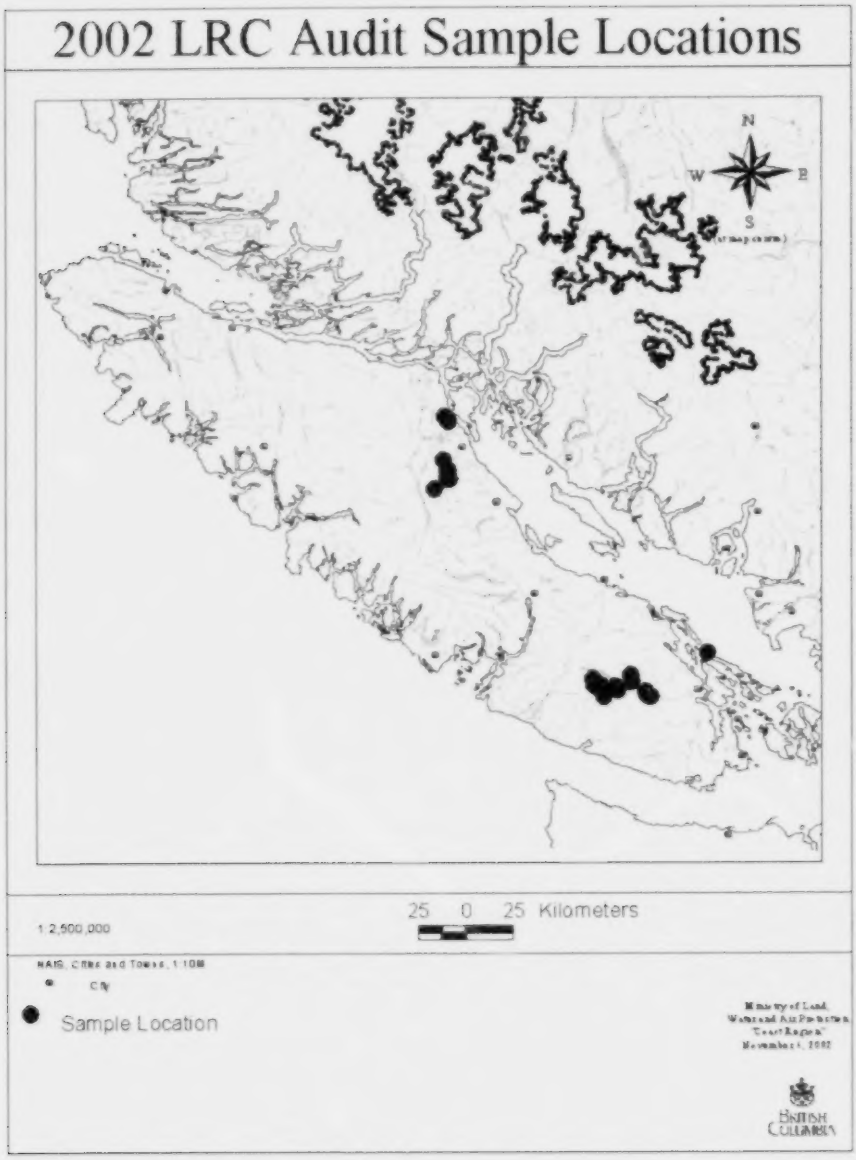
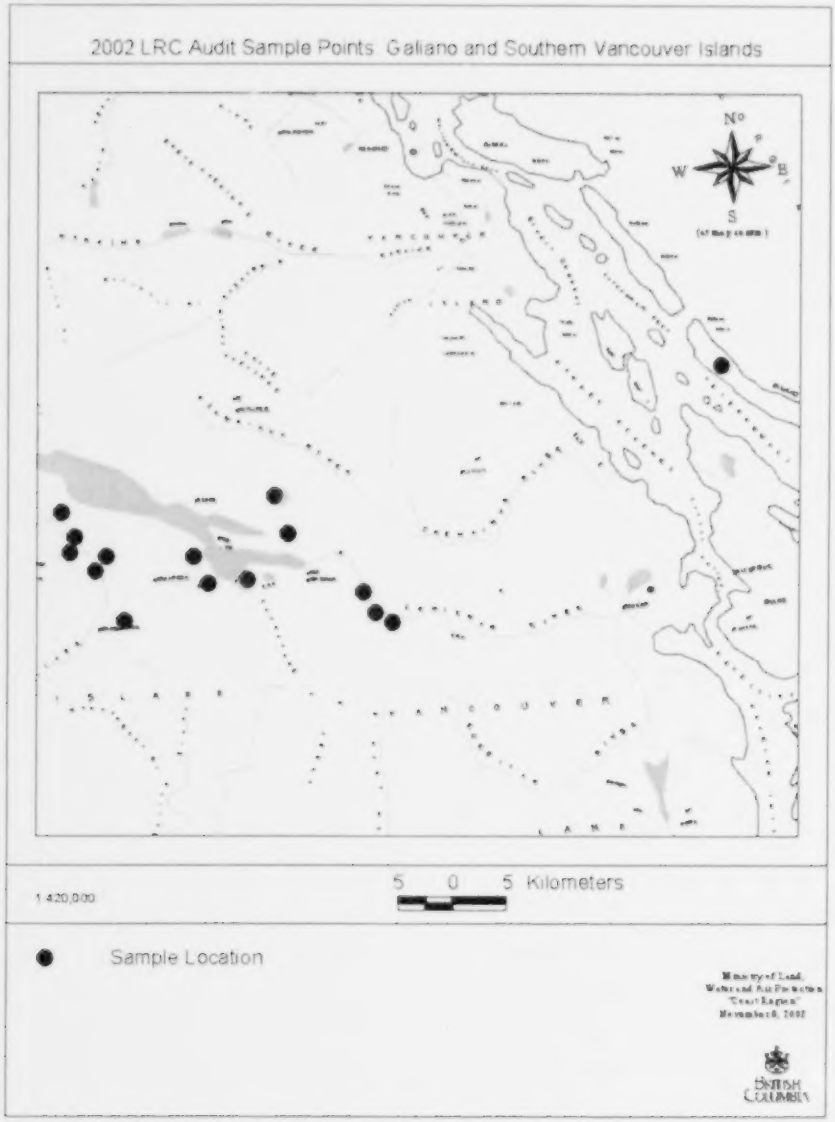
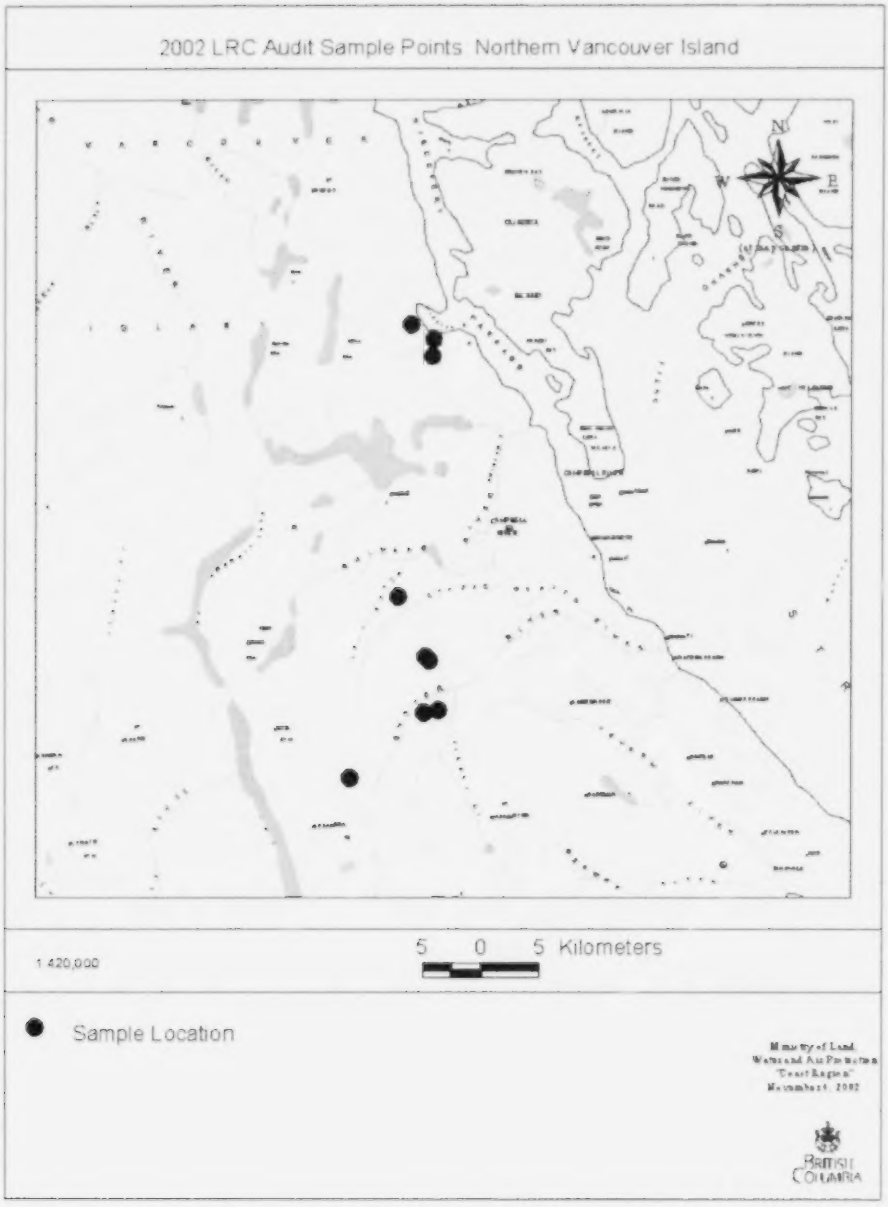


Map 1: Overview Map



Map 2: Southern Vancouver Island Portion of Audit



Map 3: Central Vancouver Island Portion of Audit

PREFACE

Duing the course of the audit, and particularly in the drafting of the report, the auditors did not consistently share similar views on certain topics. The differences in perspective were useful contributing to a good discussion of the issues and a resulted in a more considered approach.

Some important differences remained unresolved. In these circumstances I have attempted to identify the auditors whose views contributed to the statements contained in the document.

In particular, sections 8 and 9 were controversial and while there was not necessarily total disagreement within each of these sections the views presented in these sections are the sole responsibility of auditors Holbek and Telfer.

Niels Holbek, P. Ag.
Lead Auditor

1.0 INTRODUCTION

1.1 Mandate and Legislation

The Agricultural Land Commission (the Commission), formerly the Land Reserve Commission administers the Forest Land Reserve (FLR) and the Agricultural Land Reserve (ALR). The object of the Commission under the Forest Land Reserve Act is to work with owners, local governments, first nations and other communities of interest to encourage responsible forest management practices on *identified land.*

The FLR includes about 920,000 hectares of private forest land of which approximately 720,000 ha are classified *as identified land. Identified land* is private land in the FLR that is not subject to a Tree Farm Licence, a Woodlot Licence or a Community Forest Agreement under the *Forest Act.* It also includes any ALR land that is classified as managed forest for property tax assessment purposes.

The Commission is responsible for ensuring that forest management practices on *identified land* comply with the *Private Land Forest Practices Regulation, BC Reg. 318/99* (the regulation) which came into effect on April 1, 2000. This responsibility includes carrying out audits of forest practices on *identified land.*

The objective of the regulation is to protect the key public environmental values of *water quality and fish habitat, soil conservation and critical wildlife habitat.* The regulation establishes forest management objectives and standards for the protection of those values.

Currently the Province's Forest Land Reserve program is in transition. Based on Core Services Review direction, the FLR is to be phased out in a two-stage process and the administration of the Private Land Forest Practices standards is to be transferred to a new Provincial agency. At this time the first phase of the transition, the repeal of the land use provisions of the Act, has been implemented and transition planning for the forest practices standards is underway. The legal designation of the Reserve will be retained until the transition has been completed as it provides the basis for a private forest practices regulation and Managed Forest property tax assessment classification.

In the summer of 2002, and in accordance with section 29.97 of the Forest Land Reserve Act the commission approved an annual audit plan for *identified land* (*Resolution # 480/2002*). This is the second consecutive year audits are being conducted by the commission under its audit program. The 2002 audit program is designed to build on last year's audits and to record landowner compliance with regulatory requirements over time.

The forest practices audit was undertaken during October 22 through 29, 2002 by a three person audit team. The team consisted of representatives from the Commission, the Ministry of Water, Land and Air Protection and, for the first time, the Private Forest Landowners Association. Four private forest land owners on Vancouver Island were audited. This report conveys the findings of the audit as well as a brief description of the objectives, scope and methodology used.

1.2 Audit Team

In accordance with section 29.97 of the Forest land Reserve Act and section 58(1) the Commission appointed the audit team *(Resolution # 480/2002)*. The audit team was chosen to ensure a wide variety of experience and expertise. For the first time, the PFLA participated as a full audit team member. This decision was made considering the changing nature of the program and in recognizing that the PFLA works with landowners and government to provide education, training and regulatory support.

Photograph 1: Bill Robertson, Niels Holbek, Kevin Telfer and John Lamb discuss land use

The 2002 Vancouver Island team consisted of:

Niels Holbek, P.Ag. Lead Auditor Agricultural Land Commission

Niels Holbek is a Professional Agrologist with a background in Soil and Water Conservation. He has been a Forest Practices Officer since the introduction of the regulation in 2000 and currently has primary responsibility for Vancouver Island. Niels is an Official under the Forest land Reserve Act (the act). He assisted in the development of the 2001 Audit Manual and participated in the 2001 Kootenay Forest Practices Audit as an observer. Niels has previously managed two private forest land woodlots in the central Vancouver Island area.

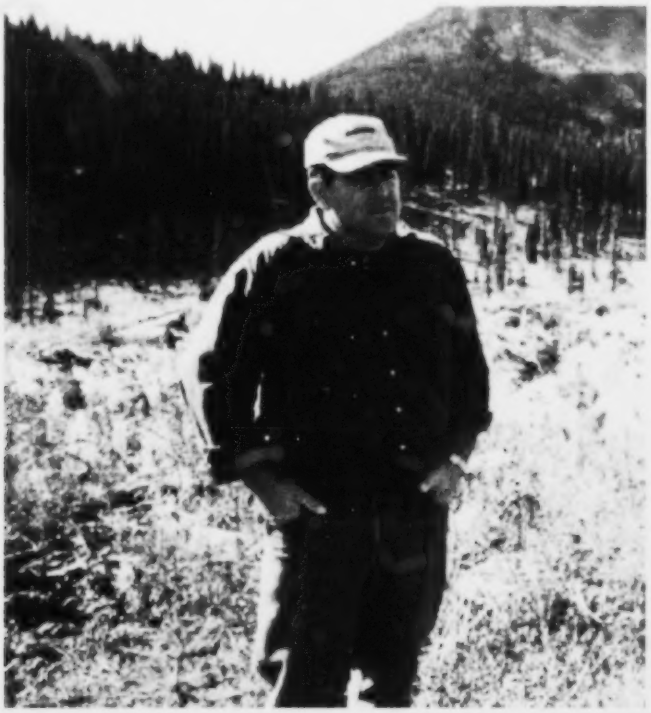
Kevin Telfer, RPF Auditor Ministry of Water, Land and Air Protection

Kevin Telfer is a biologist and Registered Professional Forester with over ten years experience in the forest sector. He has worked in the interior and coastal British Columbia with the Ministry of Forests. Since 1995 he has been with the Ministry of Environment (now the Ministry of Water, Land and Air

Protection) reviewing forestry and resource development proposals and monitoring environmental impacts on public and private land. Kevin Telfer is a Designated Environmental Official under the act. He participated in the 2001 Land Reserve Commission Vancouver Island audit as one of the auditors.

Rod Bealing, B.Sc. Auditor Private Forest Land Owners Association

Rod Bealing has trained and worked in the U.K., Europe, Scandinavia and North America. He is a Forest Craftsman and holds a City & Guilds of London Institute Diploma and a B.Sc. (Forestry) Honours degree from the U.K. National School of Forestry. He has 16 years of experience working at progressive levels in a wide range of forestry-related disciplines on public and private forest lands, including logging, reforestation and landscaping contracting, development planning, engineering, and operations. His current position is Forestry Manager for the Private Forest Landowners Association, where his primary duties are landowner and government regulatory support as well as education and training for landowners and loggers. Rod Bealing is responsible for conducting field reviews of forest practices for PFLA members, and works closely with regulatory agencies in response to public inquiries. Rod Bealing brings to the audit team a broad understanding of the issues related to the protection of key public environmental values whilst conducting the business of growing and harvesting trees.



Photograph 2: Audit team member and photographer Rod Bealing

1.3 Observers

An observer from the Department of Fisheries and Oceans accompanied the audit Team on those days that the audit sample identified fisheries values, particularly anadromous fish values, within or adjacent to the audit blocks.

Photograph 3: John Lamb observes Gordon River Tributary

John Lamb Observer Fisheries and Oceans Canada

John Lamb graduated from BCIT in Civil Engineering. He is a member of Association of Science Technologists. John Lamb spent five years with the Sediment Survey of Canada conducting unsteady flow and sediment discharge studies on the Fraser River and 25 years with Fisheries & Oceans Habitat Management working specifically on land-use related impacts on fresh water fish habitat. John Lamb was a member of the development team that produced the Coastal Fisheries/Forestry Guidelines and the Forest Practices Code Riparian Management Area Guidebook. He is currently the field supervisor for FOC South Coast Habitat Management.

2.0 AUDIT PLAN SUMMARY[1]

2.1. Objectives

In accordance with section 29.97(1) of the Forest Land Reserve Act, the Commission approved the *2002 Vancouver Island Audit plan (Resolution 480/2000)*.

The primary objectives of the 2002 Audit Plan were to assess compliance with the Forest Land Reserve Act and BC Reg. 318/99, the extent to which the objectives described in the *"Schedule A"* Forest Management Objectives of BC Reg. 318/99 have been achieved (referred to as "effectiveness" throughout the document) and to determine areas where the audit process can be improved for the next iteration of the private land forest practices program

A further objective was to find ways to use the experience gained in auditing forest practices under the current program in the development of the audit program for the new administering agency. Recognizing that a significant portion of *identified land* is independently certified, it was noted that the audit would provide insight into the potential role of third party certification in the province's private land forest practices regulatory regime.

Photograph 4: Sutton Creek Valley

2.2 Scope

[1] Further information regarding this document is available through the Agricultural Land Commission

The audit scope covers all sections of BC Reg. 318/99 and all activities completed in the period April 1, 2000 through December 31, 2001. The audit scope included management requirements on *identified land* that relate to *soil conservation, fish habitat, water supply areas, critical wildlife habitat and reforestation.* The scope addressed the owners' management activities related to timber harvesting, road construction, maintenance, deactivation, reforestation and regeneration of areas harvested or where timber had been destroyed. Activities other than reforestation/regeneration that occurred prior to April 1, 2000 could not be reviewed from a compliance perspective, as the regulation took effect on that date. Two years of forest management activities were included in order to maximize the potential audit sample population and because it can take several seasons before some effects of harvesting and road building to become evident. The audit was also used as an opportunity to verify landowner restocking success where their mandatory Annual Declarations indicated that the required restocking had been achieved.

2.3 Selection of Land Owners to be audited

The selection of land owners was designed to fairly represent harvest activities within the geographic area selected. In order to ensure that owners who had not submitted Annual Declarations to the Commission were not excluded from the sample pool, the BC Forest Service provided a summary of scale returns for private land timber marks. This data was reviewed and the owners whose land was not "identified" were removed from the data base. The remaining landowners formed the sample pool.

The following criteria were used to further define the pool of candidates:

- Geographic location – Vancouver Island (Campbell River area south)
- Two operations > 15,000 m^3 of timber harvested in 2001
- Two operations < 15,000 m^3 of timber harvested in 2001
- Not the subject of a determination hearing in 2001 or 2002
- Not part of the 2001 audit program

Properties that met the above criteria formed the sample population from which a draw determined the audit units. The following four property owners were selected for auditing (see Map 1).

Landowner	Volume (2001)	Volume (2000)	Timber Mark	Annual Declaration
Bill Robertson	520	273	EE74'	Yes
Steven Garrod/ Barbara Coward	3,248	0	EAFFN	Yes (submitted after selection)
Weyerhaeuser Canada Ltd.	217,436	183,964	6CO'	Yes
John Hancock Life Insurance Co.	78,450	132,109	EHZVJ	Yes

2.4 Audit Sample

Individual sample sites were selected based on risk factors, with the main focus being on activities conducted adjacent to streams and/or water supply areas. The following property identification number (PID) or block identification numbers were selected and comprise the audit sample:

	Robertson	Garrod/Coward	Weyerhaeuser	Hancock
PID/Blocks	009-761-632	009-625-216	Menzies 0401 Menzies 1404 Menzies 1409 IR 8409 IR 840[illegible] IR 8406 IR 7375 IR 9350	ME 108 ME 101 C ME 101 A SK 236 SK-02-A SK 103 H 200 H 09 G 119 G 107 G 116 G 104 G 166 G 41

The number of samples by various activities is estimated to be:

- 24 harvest units (clear-cuts, variable retention and selective cutting)
- 12 km of new road construction, primarily within blocks
- 2 km of deactivated road
- 5 km of streams
- 22 stream crossings

2.5 Audit Protocol

Informal opening and exit meetings were held with each owner. Exit meetings were held on site upon completion of the field assessment phase. At the exit meetings the auditors provided an overview of their findings and a preliminary opinion on performance relative to the audit objectives. During the audit owners/owner representatives were interviewed on issues related to managing their "identified" lands

Photograph 5: Weyerhaeuser audit exit meeting

Audit observations and data collection were undertaken through the combined use of interviews and field review. Specific audit considerations guided the auditors. Field books and cameras were be used for gathering information. Working papers consisted of interview notes, field data, photographs and audit sample summary notes. More detail can be found in the Land Reserve Commission's *Audit Guidance Manual* and the *2002 Vancouver Island Audit Plan*[2]. The field portion of this audit was initiated on October 22, 2002 and completed on October 29, 2002.

3.0 LAND OWNERS, PROPERTY DESCRIPTION

3.1 Garrod/Coward

Stephen Garrod and Barbara Coward own MF 167, a 49 ha parcel of land on Galiano Island. This property was managed for forestry by the previous owner, MacMillan Bloedel Limited (now Weyerhaeuser Canada Limited). The current owners have a forest management plan developed with assistance from Forest Research and Development Agreement, a recently concluded Federal/Provincial program designed to assist private forest land owners. Forest management activities are generally contracted within the local community.

[2] Further information regarding these documents is available through the Agricultural Land Commission

Photograph 6: Old road on the Garrod/Coward property

MF 167 lies within the Coastal Douglas Fir Moist Maritime biogeoclimatic sub-zone. The area lies in the rain shadow of the Vancouver Island and Olympic Mountains. The site has generally warm sunny summers and mild wet winters. Precipitation is normally in the form of rain. MF 167 is located on variably steep topography and bench type terrain at an elevation ranging from 10 to 250 metres above sea level. The area reviewed is on the side and top of a series of parallel stepped ridges. It contains moderately steep side hills as well as solid rock outcrops and cliffs with generally western exposure. A depression bisects the northwest portion of the property. This depression is partly flooded by an impoundment structure on the neighbouring property to the north. Subsurface and minor surface water flows toward the depressional area in a north westerly direction. Tree species in the area include a mixture of Douglas Fir, Red Cedar, Red Alder, Big Leaf Maple, Arbutus and Lodgepole Pine. The soils are fine textured with coarse fragments and exposed bedrock. Well drained soils, in conjunction with modest precipitation and limited surface water, reduce the risk of soil erosion generally, and into streams specifically. In the northwest portion of the property organic soils, underlain by clay, were noted in the depressional areas.

There are no fish streams on the property although there are several wetlands. The auditors observed, or noted the evidence of water fowl, cavity nesters, reptiles and deer on the property. An earlier forest practices inquiry identified a possible bald eagle nest on the property. There was extensive evidence (tracks and browse) of sheep and horses on the property particularly within the harvested area.

The recreational "Bodega ridge trail" crosses the property and is used by hikers on an infrequent basis.

3.2 Bill Robertson

Bill Robertson owns close to 200 hectares primarily in the vicinity of Cowichan Lake. The owner undertakes the day to day management of these holdings including harvesting, silviculture, road construction and maintenance. Some of the property has been in the family for three generations. The majority of MF 15 lies within the drier, submaritime portions of the Coastal Western Hemlock biogeoclimatic zone. Forests in the area were extensively harvested during the first part of the 1900's. Forest tree species on the property include a mixture of Douglas Fir, Red Cedar, Western Hemlock, Red Alder, Big Leaf Maple, Grand Fir, and Cottonwood, on a very broad range of slope gradients from flat to steep. While there are some upland forested areas much of the Robertson land is in the Robertson River flood plain. Soils in the valley bottoms are generally fertile, well drained over deep gravel deposits. Much of the topsoil has a significant organic component, and is capable of retaining moisture throughout the year, as indicated by prolific understory vegetation including Devil's club, Bracken Fern, Horsetail and Sword-Fern. The relatively high porosity of the underlying gravels and low gradient of the site allows much of the moderately high seasonal precipitation to become ground water, rather than forming surface streams or wetlands. This was evident by the few small streams occurring on the property. Such low occurrence of surface water courses significantly reduces the risk of soil erosion into streams. Favourable topography and soils have resulted in significant portions of this property being converted to agricultural use.

Photograph 7: Stream discussion on the Robertson property

A number of high value fish streams, including the Robertson River, Robertson Creek and Patricia Creek flow through or about portions of the property. These streams provide habitat for significant populations of both resident trout and anadromous salmonids. The auditors observed, or noted the signs of, Bald Eagle, Turkey Vulture, Black Bear, Roosevelt Elk, Black-tailed Deer, Red Squirrel, Grouse, and Raven in addition to various song and cavity nesting birds

3.3 John Hancock Life Insurance Company

John Hancock Life Insurance Company owns approximately 13,250 hectares in the vicinity of Cowichan Lake. Responsibility for the day to day management of these holdings has been contracted by the owner to Olympic Resource Management which oversees harvesting, silviculture, road construction and maintenance. To meet the Sustainable Forestry Initiative (SFI) certification commitments, field staff complete pre- and post-harvest inspection reports, progress inspection reports and follow wet weather shut-down guidelines. As part of internal policy, road construction on class 4 -5 slopes requires staff to seek engineering assistance from an outside professional. Reforestation and stand tending are overseen by a dedicated staff silviculturalist.

Photograph 8: Gordon River Valley

The majority of MF5 lies within the drier, submaritime portion of the Coastal Western Hemlock biogeoclimatic zone. Tree species in the area, which was extensively harvested during the first part of the 1900's, includes a mixture of Douglas Fir, Red Cedar, Western Hemlock, Red Alder, Big Leaf Maple, Grand Fir, and Cottonwood, on a very broad range of slope gradients (from flat to very steep) and aspects, occupying large parts of entire drainages. Soils are generally fertile, well drained over deep gravel deposits in the valley bottoms with a combination of sedimentary

and metamorphic rock types including limestone, shale and conglomerate on the side hills. Much of the topsoil has a significant organic component, and is capable of retaining moisture throughout the year, as indicated by prolific understory vegetation including Devil's club, *Bracken Fern*, Horsetail and Sword-Fern. The area is subject to moderately high seasonal precipitation, primarily as rain. It was noted that soils could be easily compacted or eroded, and productivity reduced, by untimely management practices undertaken during wetter periods.

A number of valuable fish streams, including the Cowichan River, the Gordon River and their tributaries, flow through or about portions of the property. The Gordon and Cowichan Rivers, and Sutton, Meade, and Ashburnham Creeks provide habitat for significant populations of both resident trout and anadromous salmonids. The auditors observed, or noted signs of, Bald Eagle, Turkey Vulture, Black Bear, Roosevelt Elk, Black-tailed Deer, Red Squirrel, Grouse, Raven and various song and cavity nesting birds.

Skutz Creek, Honeymoon Bay, Meade Creek and Gordon River were the four main harvest areas reviewed by the audit team.

3.4 Weyerhaeuser Canada Limited

Weyerhaeuser Canada owns large blocks of managed forest land in the vicinity of Menzies Bay, the Iron River and the Oyster River. The owner retains staff to take responsibility for the day to day management of these holdings including timber harvesting, silviculture, road construction and road maintenance. As part of the owner's ISO and CSA certification commitments, field staff maintain checklists for pre- and post-harvest, progress inspection reports and wet weather shut-down guidelines.

The MF 19 audit area lies within the Coastal Western Hemlock bio-geoclimatic zone. The audit samples were within the Very Dry Maritime sub-zone, western and eastern variant; the Very Dry Maritime sub-zone, Western variant and one block (IR 8409) within the Moist Maritime sub-zone, Montane variant. Tree species in the Menzies Bay area generally includes a mixture of Douglas Fir, Red Cedar, Western Hemlock, Red Alder, Big Leaf Maple, Grand Fir, and Cottonwood, on a very broad range of slope gradients (from flat to very steep) and aspects. Tree species in the Iron and Oyster River area, is largely old growth and includes a mixture of Western and Mountain Hemlock, Douglas Fir, Red Cedar, Yellow Cypress and Amabilis Fir. Three of the eight sites visited were "second growth" and five were "old growth".

Photograph 9: Variable Retention on higher elevation Weyerhaeuser property

Soils are relatively fertile, generally well drained occurring over deep gravel deposits in the narrow valley bottoms and over a combination of sedimentary and metamorphic rock types including limestone, shale and conglomerate on the side hills. Much of the soil has a significant organic component, and is generally capable of retaining moisture throughout the year, as indicated by understory vegetation that included Sword-Fern, Lady Fern and Bracken Fern.

The area is subject to moderately high seasonal precipitation, mostly as rain. It was noted that in some areas the soils could potentially be compacted or eroded, and productivity reduced if unsuitable management practices were employed during wet conditions.

A number of valuable fish streams, including Welch Creek, Mohun Creek, Snowden Creek, Coho Creek, the Oyster River and its tributaries, flow through or about portions of the property. Welch, Mohun, Snowden and Coho Creeks, as well as the lower Oyster River provide habitat for significant populations of both anadromous and non-anadromous salmonids (trout and pacific salmon species). The auditors observed, or noted signs of, Bald Eagle, Turkey Vulture, Black Bear, Roosevelt Elk, Black-tailed Deer, Red Squirrel, Grouse, Raven and various song and cavity nesting birds.

The Oyster River watershed is a "Community Watershed" and therefore the area encompassed by the Oyster River and its tributaries is considered a "water supply area" under the regulation.

4.0 FINDINGS

The findings of the audit have been divided into summaries of compliance, opportunities for improvement and regulatory effectiveness. Regulatory effectiveness has been divided into two sections that dealing with audit specific concerns and more general audit issues.

5.0 SUMMARY OF COMPLIANCE

The audit found that all forest management activities being conducted by the owners were in compliance with the regulation. A brief summary of compliance findings follows:

5.1 *Soil conservation*

The audit found that forest management activities are being conducted in compliance with the regulation. Roads were generally well constructed and no wider than necessary to safely undertake forest management operations. The percentage of productive forest land converted to roads and landings was estimated to be well below the maximum 7% permitted under the regulation.

In addition, timber harvesting access structures were generally found to be constructed, maintained or deactivated in a manner that minimized soil erosion.

5.2 *Water Quality and Fish Habitat*

The audit found that all observed forest management activities related to *water quality and fish habitat* were being conducted in compliance with the regulation. Tree retention adjacent to streams regularly exceeded the regulatory minimum requirements helping to ensure that the *water quality and fish habitat* were protected. Stream boundaries often coincided with block edges further ensuring the preservation of riparian function.

All stream crossings reviewed complied with the regulation. The auditors were not able to observe the installation of culverts. Compliance is therefore based on observations at the time of audit. In most cases any potential for soil erosion into streams was well managed and there was very limited evidence of soil having been eroded. Culverts were installed on grade with good armouring, and culvert sizing appeared appropriate for anticipated stream flows.

During the period of activity covered by this audit, there had been no water quality problems identified by downstream water users to the best of the auditor's knowledge.

5.3 *Critical wildlife habitat*

The application of *critical wildlife habitat* provisions in the regulation requires the listing of identified wildlife species pursuant to the *Forest Practices Code* and the demonstration that there is insufficient habitat on Crown forest land within an eco-region for the identified species' habitat needs. The critical wildlife provisions of the regulation have been implemented on any *identified land* to date (see section 8.3).

5.4 *Reforestation*

Compliance with the *reforestation* provisions of the regulation are only applicable to lands classified as managed forest for property tax assessment purposes. It is not possible to comment on the actual compliance level under this legislation because all regulatory *reforestation* requirements regarding the minimum allowable period within which trees must be established extend beyond the timing of this audit. Those areas declared by the two landowners to have reached "restocked" status, were confirmed to have been restocked as stocking levels observed exceeded the requirements of the regulation. Based on these findings it is fully expected that these owners will meet the regulatory regeneration requirements within the appropriate timeframe.

6.0 OPPORTUNITIES FOR IMPROVEMENT

6.1 Land owner potential for improved results

6.1.1 Garrod/Coward

Reforestation:

The auditors identified and expressed concerns about the risk of not meeting regulatory restocking requirements due to domestic livestock grazing and competing vegetation.

It was recommended that the owner monitor regeneration and be prepared to undertake seedling protection and supplemental planting as required.

Photograph 10: Seedling browse on the Garrod/Coward property

Photograph 11: At large sheep contributing to seedling browsing near the Garrod/Coward property

6.1.2 Robertson

Soil Conservation:

As noted previously no instances of regulatory non-compliance around the *soil conservation* provisions of the regulation were observed during the audit review. However, the auditors Holbek and Telfer noted that the landowner's approach to site preparation in the replanted area had significantly diminished the quantity of large organic debris on the site and had the potential to cause soil compaction. Large organic debris contributes to key soil conservation attributes including soil stability, soil moisture retention and soil organic matter. While site preparation can play an important role in reforestation it was recommended to the owner by auditors Holbek and Telfer that less intensive site preparation might enhance short term soil conservation, overall soil productivity and longer term site *reforestation* objectives.

6.1.3 Hancock

Road-related drainage:

The auditors noted several locations where there was a potential risk of soil erosion. Risk of soil erosion from access structures and, in some cases, into streams was observed. Site soil erosion can diminish soil productivity and may reduce water quality if sediment reaches a stream. The auditors recommended that owner improve water management, specifically on steep road

sections. Best management practices could be applied to slow, divert or disperse road and ditch water, thereby reducing the risk of soil erosion into streams.

Photograph 12: Potential for soil erosion on Hancock lands

Management of small non-fish bearing streams:

Options to manage blowdown, particularly adjacent to small, non-fish bearing streams where non-commercial timber retention "*to the fullest extent possible*" is required by the regulation, should be evaluated to reduce the risk of sediment transport to higher value streams. Auditors Holbek and Telfer recommend that the owners review possible strategies to diminish this risk.

Fish Stream identification:

In the regulation a *"fish stream" means a stream that*

(a) is frequented by one or more of the following species of fish:

(i) anadromous salmonids

(ii) rainbow trout, cutthroat trout, brown trout, bull trout, Dolly Varden char, lake trout, brook trout, kokanee, largemouth bass, smallmouth bass, mountain whitefish, lake whitefish, arctic grayling, burbot, white sturgeon, black crappie, yellow perch, walleye or northern pike;

(iii) identified threatened or endangered fish classified under section 63, or

(b) has an average slope gradient of less than 20% for each 100m, unless a fish inventory, carried out in accordance with methods acceptable to a designated environmental official, shows that it is not frequented by any species of fish referred to in paragraph (a),

but does not include any portion of a stream that is located upstream of a proven barrier to fish, if there is no fish habitat beyond that barrier

The auditors understand the owner treats all streams as fish streams unless they have slopes greater than 20% or have a barrier to fish as defined in the regulation. It is the opinion of auditors Holbek and Telfer that, in most cases, this practice will ensure that the owner does not err in achieving tree retention and other fish stream related regulatory requirements.

However, auditors Holbek and Telfer note that it is possible that fish such as Dolly varden char may inhabit streams exceeding 20% grade. Similarly resident fish populations may exist above fish barriers where there are headwater lakes. Based on the definition of a *"fish stream"*, auditors Holbek and Telfer have concluded that an approach to fish stream identification that uses only grade and barriers may not capture all fish streams put the owner at risk of regulatory non-compliance and failure to achieve *Schedule "A"* objectives.

The auditors note that fish stream identification and mapping is a management tool that could allow the owner to prioritize forest activities in relation to stream fish habitat value. In addition, it would allow the owner to recognize fish habitat located in high gradient streams or above known barriers to fish passage reducing the risk of non-compliance with tree retention requirements. auditors Holbek and Telfer note that such data would also facilitate the ability to assess fish stream status from mapping.

6.1.4 Weyerhaeuser

There were no opportunities for improvement discussed with the owner's representatives.

7.0 SUMMARY OF REGULATORY EFFECTIVENESS – SPECIFIC

One of the objectives of the *2002 Vancouver Island Audit Plan* was "to determine the effectiveness, or the extent to which the objectives described in Schedule "A" Forest Management Objectives of BC Reg. 318/99 have been achieved". The Schedule "A" objectives represent the key public values that the regulation was designed to protect. These four key values are *soil conservation, water quality & fish habitat, critical wildlife habitat* and *reforestation* (managed forest class only). In this section, the auditors have reviewed specific regulatory effectiveness related to Schedule "A" objectives and included comments, as relevant, to the individual land owners.

7.1 *Soil Conservation*

The forest management objectives with respect to conservation of soil, for areas where harvesting has been carried out, are:

(a) to retain the organic floor to the fullest extent possible if disturbance to the organic forest floor is likely to result in erosion of mineral soil from the area, if that erosion presents a significant risk of damage to human drinking water supplies or to aquatic habitats,

(b) to restrict the amount of productive forest land that is converted to permanent roads, landings and excavated or bladed trails to the minimum necessary to safely and efficiently conduct forest practices, and

(c) to protect soil productivity on areas other than those referred to in paragraph (b).

7.1.1 Garrod/Coward

Harvesting was undertaken with minimal site disturbance on the harvested areas. Forest land that is being converted to permanent non-productive land is being minimized through few and narrow roads. A Minor concern regarding bare exposed cut slopes was expressed by auditors Holbek and Telfer. They noted that grass seeding the area had the potential to improve slope stability and reduce any potential soil erosion from the slope.

Photograph 13: New road cut on the Garrod/Coward property

7.1.2 Robertson

The majority of the audit area harvested is being cleared for future agricultural production. Effectiveness related to *soil conservation* on that portion has therefore not been assessed.

In one small (1-2 ha) harvested and replanted area, site preparation had been aggressive resulting in significant site disturbance and a relative absence of large woody debris. This was not a regulatory compliance concern and the auditors recognize the role of site disturbance in reforestation. Auditors Holbek and Telfer did note that less site disturbance and greater preservation of large organic debris could enhance long term future site productivity and related

short term *soil conservation* objectives. It was further recognized that the site impacts were limited by the time of operation, equipment and well drained nature of the soils.

Photograph 14: Upgraded road on the Robertson property

Forest land that is being converted to permanent non-productive land in the form of roads and landings is being minimized through upgrading of a limited number of narrow roads.

7.1.3 Hancock

The area occupied by roads and landings on the Hancock lands was observed to be consistently less than the regulatory maximum specified in the regulation.

The owner utilizes pre- and post-harvest checklists and has wet weather shut-down guidelines which assist in achieving forest management objectives consistent with regulatory requirements. The *soil conservation* objectives are, for the most part, being achieved by Hancock. Appropriate harvesting methods that minimized site disturbance were selected.

Forest land that is being converted to permanent non-productive land is being minimized with effective road layout, limited use of landings and road debuilding. Roads are generally well designed and road widths are kept to the minimum that allows for safe hauling.

Roads not in active use were protected from failure by the extensive use of waterbars. Where spur roads or landings are no longer required, they are generally being fully rehabilitated, revegetated and, in some cases, reforested. In a number of instances opportunities to reduce road related soil erosion through best management practices were noted.

Photograph 15: Road used by Hancock to harvest in the Little Gordon River area

7.1.4 Weyerhaeuser

The area occupied by roads and landings on Weyerhaeuser lands was observed to be consistently less than the regulatory maximum. The auditors were advised that the planning and mapping of roads occurs well in advance of harvesting. Road construction up a year in advance of use allows the roads to "set" prior to heavy use, significantly improving road performance. Roads were found to be well planned, constructed and maintained.

Photograph 16: Measuring Weyerhaeuser road

Within the audit area, Weyerhaeuser employs a hydro-seeding contractor twice annually to hydro-seed new ditches and exposed soil areas. Grass seeding was observed to have established well and the practice appears to be highly effective at minimizing soil erosion.

Photograph 17: Weyerhaeuser forest road Menzies Bay area

Culverts are sized using a standardized approach (the California method). The minimum of stream culverts is 600 mm and minimum size of ditch culverts has been established at 500 mm. These practices assist in ensuring that crossing structures are sized to meet drainage flows and reduce the risk of soil erosion.

Soil erosion risks are further reduced through the use of wet weather shut-down guidelines. Remote weather stations provide data to assist in shut-down decisions.

7.2 *Water Quality and Fish Habitat*

The forest management objective with respect to protecting human drinking water quality and fish habitat, both during and after harvesting, is to retain sufficient streamside mature trees and understory vegetation to sustain all of the following:

(a) a natural variation in water temperatures;
(b) cover for fish;
(c) a continual source of large woody debris for stream channel stability purposes;
(d) a vigorous mass of roots capable of controlling stream bank erosion;
(e) a filter to prevent the transport of sediment into stream channels;
(f) woody debris sufficient for in-stream habitat;
(g) a source of nutrients to the stream through litter fall.

7.2.1Garrod/Coward

There are no fish streams on the property and any risk to water quality is very limited.

7.2.2 Robertson

The presence of a berm and a road between the harvested area and the Robertson River isolates the river and contains any potential soil erosion to the Robertson River. With approval from the relevant regulatory agencies a significant volume of gravel had recently been removed from the river bottom close to the harvested area. A portion of this material was used to upgrade the owner's roads in the area.

The owner has worked cooperatively with numerous salmon enhancement programs and during the audit voluntarily agreed to remove a log from a culvert providing access to a fish spawning and rearing channel on the property.

Photograph 18: New bridge on the Robertson property

The auditors viewed two recently constructed bridges on the property outside the audit area. They were impressed by the quality of construction and the owner's recognition of the fish values associated with the streams that were crossed.

7.2.3 Hancock

The management practices observed consistently achieved the regulatory Schedule "A" objectives for fish and water quality contained in the regulation. Maintenance of water quality is a corporate goal. To assist in achieving this goal, the owner has documented riparian retention objectives. The goals and objectives have resulted in very effective riparian zones with more than sufficient trees retained to ensure that minimum regulatory requirements are exceeded. Stream location is considered during block layout and streams are often excluded from the block boundary. Fisheries values are recognized and the owner participates in various enhancement programs including projects on both the Sutton and Meade Creeks.

Photograph 19: Sutton River tributary on Hancock lands

A concern related to windthrow and soil erosion resulting from the regulatory requirement to retain non-commercial trees was identified by the owner's representatives and the auditors (Block GO 107). Current regulatory constraints prevent the owner from requesting an authorization (or variance) to reduce or waive this requirement *(see section 8.1)*.

7.2.4 Weyerhaeuser

The practices observed consistently met the *Schedule "A"* objectives for fish and water quality contained in the regulation.

Where stream fish presence is in doubt, the company contracts qualified fish biologists that use approved methods, to determine fish presence and fish habitat status.

Streams are assessed, mapped and flagged in the field pre-harvest. Stream prescription tables and maps are provided to operators during forest management operations to reduce the risk of negative environmental stream impacts.

Variable retention management policies provide the opportunity to use key environmental features such as streams for consideration as priority tree retention areas. The auditors observed

that this practice has resulted in highly effective riparian tree retention. All audited blocks, exceeded the regulatory minimum tree retention requirements.

Photograph 20: Welch Creek streamside retention on Weyerhaeuser lands

Significant topping and spiral pruning of retained trees has been undertaken in those riparian areas where high windthrow risk has been identified. In most cases this practice, in conjunction with effective riparian areas, appears to have reduced windthrow. Soil erosion has been minimized, stream banks protected, future large woody debris recruitment preserved, shade maintained and a source of nutrients retained.

A concern related to windthrow and soil erosion resulting from the regulatory requirement for retaining non-commercial trees adjacent to minor non-fish streams was discussed with the owner's representatives. Current regulatory constraints prevent the owner from requesting authorization to reduce or waive this requirement. The inability of the owner to alter the requirements of section 9 (1)(d) mirrors the concern discussed with another owner. The effectiveness of section 9(1)(d) of the regulation, in relation to the achievement of *Schedule "A"* objectives for water quality was considered *(see section 8.1)*.

7.3 *Critical wildlife habitat*

The forest management objective with respect to critical wildlife habitat is to facilitate the long-term protection of that habitat by:

(a) providing an opportunity for the Ministry of Environment, Lands and Parks to reasonably assess whether critical wildlife habitat is present on identified land, and

(b) enabling agreements to be entered into to protect the habitat.

As *critical wildlife habitat* for private forest land has not been identified in this region, it is not possible to comment on the effectiveness. However, it was evident that landowners are aware of this regulatory requirement and process to protect *critical wildlife habitat*.

7.3.1 Garrod/Coward

The owner recognized general wildlife values on the property. No regulatory *critical wildlife habitat* opportunities have been identified on the owner's land.

7.3.2 Robertson

The owner recognized general wildlife values on the property. No regulatory *critical wildlife habitat* opportunities have been identified on the owner's land.

7.3.3 Hancock

The owner's representatives are aware of general wildlife values on the property and have been responsive in dealing with wildlife issues.

Retained wildlife trees where evident throughout the harvested Hancock lands reviewed by the audit team.

No regulatory *critical wildlife habitat* opportunities have been identified on the owner's land.

7.3.4 Weyerhaeuser

The owner's representatives are aware of the general wildlife values on the property and have been responsive in dealing with these issues. Blue and red species lists are obtained from the Conservation Data Centre to improve the owner's overall awareness related to wildlife issues.

Retained wildlife trees where evident throughout the harvested Weyerhaeuser lands reviewed by the audit team.

No *critical wildlife habitat* opportunities have been identified on the owner's land.

Photograph 21: Wildlife tree retention on Weyerhaeuser lands

7.4 *Reforestation*

The forest management objectives with respect to reforestation of areas where timber has been harvested or destroyed is to promptly regenerate the areas with a healthy, commercially valuable stand of trees that is unimpeded by competition from plants and shrubs.

7.4.1 Garrod/Coward

The owner is relying on natural regeneration to achieve restocking within the permitted five year period following harvest. It is therefore too early to determine *reforestation* effectiveness on this property. The owner was very interested in reforestation and understood the auditors' specific concerns about achieving successful natural regeneration on the property where observed extensive animal browse and vegetative competition may be significant challenges to achieving successful reforestation. Failure to achieve the legislated *reforestation* requirements may result in the loss of Managed Forest Class for property tax purposes.

7.4.2 Robertson

There was only one small reforested block within the audited area. This area had been promptly restocked following harvest, with a well distributed commercial tree specie. The auditors anticipate that the observed plantation will successfully re-generate.

7.4.3 Hancock

A wide variety of planting and stand tending practices ensure that this owner has an effective reforestation program. Very prompt reforestation ensures minimal competition and rapid seedling establishment. Silvicultural prescriptions are conducted to assist reforestation planning with appropriate densities of healthy, commercial tree species. All areas declared restocked were found to exceed the minimum regulatory restocking requirements.

Photograph 22: Rehabilitated and planted trail on Hancock Skutz Creek lands

Based on all the field observations of many blocks reviewed, the auditors anticipate that the *Schedule "A"* objectives for *reforestation* will be achieved.

7.4.4 Weyerhaeuser

The owners planting and stand tending practices ensure an effective reforestation program. Very prompt reforestation ensures minimal competition and rapid establishment. All areas declared restocked were found to exceed the regulatory requirements.

Based on all the field observations of many blocks, the auditors anticipate that the *Schedule "A"* objectives for *reforestation* will be achieved.

Photograph 23: Bernie Chapman, Weyerhaeuser, showing root development on seedlings

7.5 Overall Land Owner Effectiveness Comments

7.5.1 Garrod/Coward

Due to the relatively small size of this property, the limited harvest area and an absence of streams in the audited area auditors Holbek and Telfer are of the opinion that is not appropriate to make comments or conclusions regarding general effectiveness.

7.5.2 Robertson

Due to an absence of streams within the audited area and it's relatively small size general effectiveness is difficult to assess. The owner appears committed to forest management practices that will meet or exceed the regulatory standards and achieve the *Schedule "A" forest management objectives.*

7.5.3 Hancock

The owner's representatives demonstrated a commitment to achieving or exceeding the regulatory standards. The audit revealed that the owner is achieving compliance with the regulation and managing the operation in a manner that recognizes the key public values.

The owner has recently been independently audited and certified through the Sustainable Forestry Initiative (SFI).

7.5.4 Weyerhaeuser

The owner's representatives demonstrated a commitment to achieving a high standard of forest practices. The audit revealed that the owner is achieving compliance with the regulation and managing the operation in a manner that recognizes the key public values.

The auditors noted that the owner's harvest block mapping was excellent. The documentation was detailed, understandable and yet confined to one page.

MF 19 Blocks 8 and 9 are certified to Canadian Standards Association (CSA) Sustainable Forest Management System CSA-Z809 and International Standards Organization (ISO) 14001 Environmental Management System (EMS) standards. The Division was most recently recertified in the spring of 2002. In addition to independent verification audits, the owner uses internal auditors to ensure that operations comply with their environmental management systems.

8.0 SUMMARY OF REGULATORY EFFECTIVENESS – GENERAL

One of the objectives of the *2002 Vancouver Island Audit Plan* was "to determine the effectiveness, or the extent to which the objectives described in *Schedule "A" Forest Management Objectives* of *BC Reg. 318/99* have been achieved". The *Schedule "A"* objectives represent the key public values that the regulation was designed to protect. These four key values are *soil conservation, water quality & fish habitat, critical wildlife habitat* and *reforestation* (managed forest class only). The plan also stated that the "audit criteria would focus on the program as a whole" In this section, auditors Holbek and Telfer have therefore taken a broad view and considered three general effectiveness issues, two related to tree retention (*water quality and fish habitat*) and one related to *critical wildlife habitat.*

8.1 Section 9(1)(d) Non-commercial tree retention and clarification of the "fullest extent possible

The relevant section states:

(1) An owner of identified land who carries out, adjacent to a stream, timber harvesting or related activities, silviculture activities, or road construction or deactivation activities, must ensure that those activities meet all the following requirements:

(d) understory vegetation and non-commercial trees within 5 m of the edge of the stream channel are retained to the fullest extent possible except at a stream crossing or planned fire;

A concern related to windthrow and soil erosion resulting from the regulatory requirement for retaining non-commercial trees on all streams was discussed in the field. The auditors noted the blowdown of retained non-commercial on some very small streams (< 1.5m) had resulted in potential sediment sources from destabilized stream banks and/or exposed root balls. Current regulatory constraints prevent the owner from requesting authorization to reduce or waive this requirement.

It is therefore recommended that the Commission further assess the effectiveness of this section of the regulation, 9(1)(d) in relation to the achievement of *Schedule "A"(1&2)* objectives.

Additionally, a portion of this section may have a variety of interpretations that could be problematic. Section 9(1)(d) requires that "*understory vegetation and non-commercial timber within 5 m of the edge of the stream channel are retained to the fullest extent possible*". The wording "*fullest extent possible*" is subject to a number of possible interpretations related to ease of operation, replanting opportunities, blowdown management, pest management and disease control. Field assessment of retention to the "*fullest extent possible*", both from the perspective of the owner and the regulator, could be become complex with potentially conflicting interpretation(s).

It is therefore recommended, that the Commission review the objective of this requirement, clarify the intent and ensure that the intent can be effectively achieved.

8.2 Tree retention

The forest management objective with respect to protecting human drinking water quality and fish habitat, both during and after harvesting, is to retain sufficient streamside mature trees and understory vegetation to sustain all of the following:

(a) a natural variation in water temperatures;
(b) cover for fish;
(c) a continual source of large woody debris for stream channel stability purposes;
(d) a vigorous mass of roots capable of controlling stream bank erosion;
(e) a filter to prevent the transport of sediment into stream channels;
(f) woody debris sufficient for in-stream habitat;
(g) a source of nutrients to the stream through litter fall.

While the audited tree retention on the fish and "water supply area" streams generally appeared capable of achieving the stated objectives The auditors are concerned that tree retention at or approaching the regulatory minimums may pose a risk of not achieving all of the relevant *Schedule "A"* objectives.

The auditors noted that tree retention adjacent to small and large *Division 3* streams regularly exceeded the minimum standards contained in the regulation.

There are likely a variety of potential reasons for this observation including harvesting policies such as variable retention. It is also possible that there is a general sense among owners that the minimum tree retention standards specified in regulation risk achieving only the very minimum in terms of *Schedule "A"* objectives related to *water quality and fish habitat.* Owners may therefore be voluntarily exceeding the standards to provide greater assurance that *Schedule "A"* objectives will be achieved.

It was also noted that portions of tree retention areas adjacent to streams were frequently subject to accelerated blowdown after the adjacent area had been harvested. If only regulatory minimums are retained, and blowdown occurs, fewer trees than anticipated will be present to achieve the stated *water quality and fish habitat* objectives.

In light of these observations, it is recommended that the Commission undertake a review of the current scientific literature and seek professional opinion regarding streamside tree retention in relation to water quality in general, and fish habitat in particular, in order to assess whether the retention standards are sufficient to achieve the regulatory *Schedule "A"* objectives.

8.3 *Critical Wildlife Habitat*

The forest management objective with respect to critical wildlife habitat is to facilitate the long term protection of that habitat by:

> *(a) providing an opportunity for the Ministry of Environment, Lands and Parks* (now comprised of the Ministry of Water, Land and Air Protection and the Ministry of Sustainable Resource Management) *to reasonably assess whether critical wildlife habitat is present on identified land, and*
>
> *(b) enabling agreements to be entered into to protect that habitat.*

Auditors Holbek and Telfer noted that the forest land owners audited were familiar with the regulatory provisions related to *critical wildlife habitat* and had a good general knowledge of wildlife issues.

The *critical wildlife habitat* provisions of the regulation (see sections 20 - 24 of the regulation) had not been implemented on any of the areas audited. A review of LRC records identified that these regulatory provisions have not been exercised on any *identified land* during the period in which the regulation has been in force.

The BC Conservation Data Centre has identified several coastal forest species and plant communities as red-listed or endangered. As many of these may be found in areas dominated by private land ownership (most of which is *identified land* on Vancouver Island), it is reasonable to expect that *critical wildlife habitat* is a key public environmental value worth considering for protection.

In the absence of regulatory experience related to *critical wildlife habitat* the effectiveness of this portion of the regulation can not be directly assessed. However, an indirect assessment was undertaken by reviewing the potential of the existing regulation to achieve the stated objectives.

Auditors Holbek and Telfer identified a number of obstacles to achieving *Schedule "A"* objectives that are inherent in the regulation. These obstacles include the complex process of achieving an inclusive listing and subsequent designation of "identified wildlife", limited resources to complete time sensitive habitat assessment challenges necessary on both Crown and *identified lands* and limitations to the maximum area of *critical wildlife habitat* area on small and medium size holdings. Should these challenges be overcome, the ability to ultimately complete an acceptable agreement between a land owner and the Province may well be constrained by other priorities. In summary, these various constraints limit the ability of a Designated Environmental Official to reasonably assess whether critical wildlife is present on *identified land* and hinder the potential to achieve agreements that will protect *critical wildlife habitat*.

It is recognized that federal Species at Risk legislation and other informal processes may provide alternate mechanisms to protect these *critical wildlife habitat* values on *identified lands*. Nevertheless, it is recommended that the Commission review the provisions of

Division 5 of the regulation and assess if the current regulatory mechanisms provide a reasonable expectation of achieving the *Schedule "A" critical wildlife habitat* objectives.

9.0 AUDIT PROCESS IMPROVEMENT OPPORTUNITIES

The *2002 Vancouver Audit Plan* recognized that regulation of private land forest practices is to be transferred to a new administering agency. Therefore, a further objective of the audit identified in the audit plan was to determine ways to use the experience gained in auditing forest practices under the current program in the future development of audit programs for the new agency. Auditors Holbek and Telfer present the following topics and recommend that they should be discussed and considered in future audit programs. The five topics are annual reporting, the use of observers, the value of education in the audit process, future audit team members and third party certification.

9.1 Annual Declarations

Owners of *identified land* are required to submit Annual Declarations to the Commission. The Annual Declaration was, among other things, intended to provide information for audit purposes. The failure by some owners to submit their declarations in a timely manner required the auditors to source harvest data from the Ministry of Forests to ensure that failure to submit an Annual Declaration did not exempt them from the audit sample pool.

The quality of reporting and the mapping submitted in Annual Declarations is extremely variable. In some cases the quality of the information makes the assessment of candidates and audit blocks difficult.

Ensuring reporting compliance and improving reporting standards would improve the audit process.

9.2 Observers

The 2002 Vancouver Island benefited form the participation of the participation of John Lamb, FOC. His experience and expertise was a valuable asset to both the audit team members and the owners. The continued use of observers with relevant field experience is recommended.

9.3 Education

A significant value of the audit relates to the education value both for the audit team and the owners. The role of education and strategies for reporting the education value, including such things as beneficial practices and opportunities for improvement should be articulated in the audit planning process and in the audit plan.

9.4 Audit Team Members

The audit team benefited from the increased diversity in the team make up. Future audits might consider expanding the membership of the audit team to include representation from other agencies, academia, environmental organizations and/or the general public.

9.5 Certification

The potential role of third party certification in the province's future forest practices regulatory regime was specifically identified as an objective in the *2002 Vancouver Island Audit Plan*. Based on limited informal discussions with two of the owner's representatives and an imperfect knowledge of third party auditing the following comments reflect a preliminary review of the potential future role of third party certification.

Over the past decade, there has been significant adoption of certification by forest owners and operators in British Columbia. Third party certifying agencies focus on different management attributes within a range of operational, process or performance standards. The objective is to provide assurance, to a variety of interested parties, that a measure of forest management and environmental performance is being achieved.

As the regulation of forest practices on private lands undergoes a structural transition it is reasonable to consider the potential role of certification as a mechanism to provide supplemental information in assessing risk related to regulatory audits or to significantly reduce the need for the current form of regulatory audits.

Two of the auditees in the 2002 Vancouver Island Audit were certified and had experience with third party certification and associated audits. Auditee experience was with the Sustainable Forest Management System standard of the Canadian Standards Association (CAN-CSA Z809-96), Sustainable Forestry Initiative (SFI) and Environmental Management System standard of the International Organization for Standardizations 14001 (ISO 14001-96).

ISO and CSA rely on management systems that incorporate a -plan-do-check-act- cycle focusing on prevention, performance and continual improvement. The system does not directly assess regulatory compliance. However, should a regulatory non-compliance occur or be discovered, the system is designed to result in mitigation of the issue, determination the root cause and, as deemed appropriate, correction of any process problems that contributed to the non-compliance. SFI relies less on this type of formal management system as it is more a standards based, measure of forest management performance.

ISO 14001 and CAN-CSA-Z409 require annual internal audits by the company, annual surveillance audits by the registrar and full re-certification audits every three years. SFI has less clearly defined requirements for informal and formal audits.

As certification programs mature, it is reasonable to anticipate that certification audits will improve performance through experience and more effective management systems. It is also possible that certification systems could be adapted to provide a more direct focus on both results (effectiveness) and regulatory compliance.

Third party certification audits should meet three basic tests prior to being considered as a contribution to or alternative for publicly accountable regulatory auditing. The certification audits should be:

- made publicly available (currently a summary of CSA Z809 audits are made public while ISO 14001 and SFI are made public only at the discretion of the owner),
- able to provide some measure of regulatory compliance assessment, and
- undertaken with appropriate and defined frequency

In addition, certification systems should be held to high standards of professional accountability.

Under these circumstances, third party certification audits may have two potential future roles in a new program and could either:

- contribute to the risk assessment undertaken in the selection of regulatory audit candidates, or
- substantially reduce the need for publicly accountable regulatory auditing.

10.0 CONCLUSIONS

This audit reviewed the regulatory performance of four private forest *identified land* owners. All of the owner's audited land was found to be in regulatory compliance. In keeping with the ALC role of working with owners to improve standards several areas of improvement were identified for consideration by the owners.

Program effectiveness was reviewed from a specific and general perspective. Comments and recommendations for consideration by the Commission and or its forest practices successor have been identified by auditors Holbek and Telfer.

The future potential of certification as a mechanism to offset the need for publicly accountable regulatory auditing was discussed with two potential future scenarios outlined by auditors Holbek and Telfer. From the limited audit sample, it appears that those owners with registered management systems are likely to be at a lower risk of non-compliance.

In addition, the audit provided good opportunities for broad based forest practices discussions resulting in educational value for all that participated. Based on the overall value of the audit process, auditors Holbek and Telfer encourage the continued use of auditing of private land, regulated forest practices.

11.0 ACKNOWLEDGMENTS

The auditors wish to acknowledge the cooperativeness of all the owners and their representatives for their willingness to discuss a broad range of forestry and forestry related issues that went beyond the regulatory compliance.

The auditors appreciated the valuable participation of John Lamb with the Department of Fisheries and Oceans. His approach and broad fisheries knowledge contributed significantly to the audit and its overall educational value.

The lead auditor and author wishes to acknowledge the valuable assistance of Rod Bealing, Private Land Owner's Association in providing the audit photographs and reviewing the audit report, Kevin Telfer, Ministry of Water, Land and Air Protection in providing the mapping and reviewing the report and Craig Sobering of the Agricultural Land Commission for his ever vigilant, editing skills.